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AUTHOR Golomb, Claire
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ABSTRACT

The paper examines the early development of a highly talented child artist in light of three theories of graphic development in children: (1) drawing development is a search for increasingly satisfying solutions to graphic problems that proceeds along a stage-like path; (2) gifted children aspiring to be artists carefully imitate their culture's representational conventions; and (3) styles or projective systems are derived from natural perspective and are alternative ways of representation that are not ordered along a developmental dimension. Detailed analysis of the drawings of the child artist from the ages of 2 through 6 lead to the conclusion that even a precociously gifted child artist does not really skip stages or phases in his graphic development. The idea that drawings employ an arbitrary system of convention-based graphic symbols was not supported. The existence of an intrinsic logic that guides the child's motivated invention of drawing systems was supported. The drawings are attached. (14 references.) (DB)

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EYTAN

THE DEVELOPMENT OF A PRECOCIOUSLY GIFTED CHILD ARTIST

Claire Golomb

Department of Psychology

University of Massachusetts at Boston

Paper presented at the symposium "The Development of Gifted Child Artists", Annual Convention of the American Psychological Association, Boston, 1990.

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EYTAN:

THE DEVELOPMENT OF A PRECOCIOUSLY GIFTED CHILD ARTIST

Claire Golomb

For those of us interested in psychology and art, the study of gifted child artists holds an intrinsic interest in that it addresses what is **unique** in human development as well as the **general** issue of creative mental activity.

When we trace the graphic development of a gifted child artist, we are likely to perceive a relatively continuous progression toward mastery of the medium. Charting such a developmental path is, of course, very different from the usual cross-sectional studies of child art. These studies suggest that children's interest in drawing declines toward the end of the childhood years, and that their graphic development seems to come to a halt.

It is through the study of gifted children that we are able to shed some light on fundamental questions of representational development. So let me pose a set of questions to which a detailed record of the childhood drawings of a gifted child may hold some answers:

1. Does the develpment of a gifted child artist follow the same path as that of ordinary children? By the same path I mean the commonly assumed progression from scribble patterns to the typically flat childhood drawings that depict the canonical views of objects, to more detailed renderings of the object and, finally, to a more "realistic" view based on perspective

projections?

2. To what extent are drawings that employ some form of perspective projection a natural endpoint of graphic development?

3. If perspective drawing is indeed a late achievement in the course of graphic development, how are we to interpret the unusual case represented by Nadia, the by now famous autistic child artist? (Selfe, 1977) At an early age, Nadia produced sophisticated three dimensional drawings of her favorite subjects. Is Nadia's precocious graphic achievement a mark of pathology (as most experts have suggested) or merely an indication of an unusual talent pursued with intense dedication?

4. How do we define or identify giftedness? If one considers the early achievement of precociously gifted children, can we say that it is merely development compressed in time? Are the drawings merely advanced for the chronological age of the child, or does the gifted child bring **unique** qualities to his or her work, an **originality** which is more than mere precocity?

5. Lastly, can we find a consistent relationship between the child's representation of space in drawing and his conception of geometry as Piaget has postulated (Piaget & Inhelder, 1956; Piaget, Inhelder & Szeminska, 1960)? Is there a close linkage between drawing and cognition?

Clearly, these questions address well-known controversies in the field of child art and go to the heart of representational development. Do we view the changes that occur over time as

meaningful tranformations in the graphic conceptions of the child? If the answer is affirmative, then drawing development can be seen as a search for increasingly more satisfying solutions to graphic problems, and as an organized mental activity that proceeds along a stage-like path. The same logic would apply to the artistically gifted, although their talent might manifest itself in more mature forms. This view of graphic development assumes some degree of continuity between the child artist's conceptions, motivation and intense dedication and that of the adolescent and young adult artist. This is the view most clearly represented by Rudolf Arnheim (1974).

Alternatively, one can postulate a lack of continuity between the drawings of young children and those aspiring to become artists. In this view, the gifted and higly motivated youngsters strive to learn the tricks of the trade by carefully imitating the models exhibited by their culture. This is the position most carefully articulated by Brent and Marjory Wilson (1976, 1977). The Wilsons view artistic representation as a cultural convention which, like language, is composed of arbitrary symbols made meaningful by societal consensus.

A third position, which also rejects the notion of a developmental progression in drawing, is adopted by Margaret Hagen (1986). According to this student of perception and art, natural perspective encompasses the major drawing systems employed by different societies at different historical times. Thus, orthographic, oblique, and convergent perspective reflect

perceptual experiences of ordinary people and of artists alike. Styles or projective systems are alternative ways of representation that are not ordered along a developmental dimension.

What is the empirical evidence for these contrasting positions? Unfortunately, there is a paucity of published data on the early graphic development of gifted child artists. Unlike musical and mathematical prodigies, gifted child artists are either extremely rare or have not been identified by researchers interested in child art. The preservation of some of the early drawings of Toulouse Lautrec and Millais may well be the exceptions (Paine, 1981, 1987; Pariser, 1987). However, their earliest drawings stem from the age of six or seven and already demonstrate a growing competence to represent objects in space. They do not represent starting points. Another collection of great interest, the drawings of Nadia, present a peculiarly truncated body of work that extends from age three and a half (3.6) to six, showing neither a clear beginning of her first representational efforts nor the full development of her talent.

Fortunately, more information is becoming available, and our symposium with its focus on three highly gifted child artists, draws attention to some of the newer findings.

I shall now turn to the early work of Eytan, a precociously gifted child artist for whom a continuous record exists that dates from the age of just turning two till the present time when Eytan is eighteen. For purposes of this presentation, I shall

focus on the early work, from age two till age six.

For the first four years of his life, Eytan was an only child. His parents do not remember if Eytan ever scribbled. The collection of drawings, which runs into the thousands, begins when he just turns two. For our purposes it is fortunate that his mother dated each of the many drawings which Eytan made over the coming years. A word about the parents. The father -- an architect, the mother -- a preschool teacher, are both talented in the arts. While they clearly valued and enjoyed Eytan's early graphic efforts, and thus preserved his drawings, theirs was a "hands off approach," a philosophy of non-interference, a belief that he should be allowed to pursue his interests at his own pace.

Eytan's collection is of particular interest in that he pursues, with an incredible determination for a child that young, his intention to portray objects, especially vehicles as faithfully as he can. We can follow in a step-wise fashion how this toddler teaches himself the major projective drawing systems until he has mastered the depiction to his satisfaction, and indeed becomes masterly at it. He provides us with a record of his visual thinking and of graphic problem solving, as he pursues his goals, on his own, without aid from adults and without copying of models. We can follow each one of his solutions, how they are tried out, are transformed, perfected or discarded.

This graphic record enables us to assess the validity of the different positions which I sketched out briefly in the

beginning. In the case of Arnheim's view of graphic development, there is a logical progression in the drawing systems that the beginning artist will master. In early stages, orthographic projections are most likely to be mastered; they are drawings that represent their object as it were in the frontal parallel plane, perpendicular to the line of sight of the observer (see Illus. 1b, a schematic representation of a car). Next, we can expect to see drawings in which a frontal view (from the point of view of the observer) is supplemented by one or two side views that are attached to the facade. (For example, in the case of the car, bumpers, head and rear lights, grill). Thus two or three sides of the object are represented, but the sides are depicted in the horizontal plane (Illus. 1c). Additional top faces along the vertical axis can also be appended to the frontally presented orthographic view (Illus. 1d,e). (In Willats terminology (1977), these drawing systems are defined as horizontal and vertical oblique projections.) When the two side views of the cubic object, which exemplifies the various projective systems best, are drawn with oblique lines that represent depth, we can speak of divergent perspective. This is a first effort to truly represent the third dimension in drawing (Illus. 1f, g). The next step toward representing the missing third dimension is to create parallel oblique lines, which Arnheim terms isometric projection and Willats oblique projection (1 h). Convergent perspective, in which oblique lines converge toward a center, is the last drawing system to emerge (Illus 1i).

This projected course of development, as outlined by Rudolf Arnheim, can be contrasted with the views of Brent and Marjory Wilson and of Margaret Hagen. In the case of the Wilsons, once the child has mastered the earliest and innately determined phases of creating forms and organizing them, there is no predicted sequence of stages in graphic development. The child interested in drawing will adopt the system most prevalent in his pictorial environment. In that view, what we call drawing development is merely acculturation. From this position one might predict that perspective drawing, which is highly valued and widely represented in our culture, ought to follow the earliest phases in children's drawings. Margaret Hagen, who objects both to the notion of "development" in drawing and to the view that drawing systems are merely social conventions, promulgates the significance of natural perspective for drawing. She would predict a similar outcome as the Wilsons, albeit for very different reasons.

Let us now turn to a review of Eytan's early graphic output and consider the five questions which I stated at the beginning.

The first drawings at age two show a full range of themes: humans which represent Eytan's family, animals, tractors, train, compressor, hunters. The early humans are drawn in typically frontal fashion facing the viewer; they are tadpoles, drawn without regard for the shape, size, proportion or dimensionality of the figure, and thus can best be characterized as topological (see Illustrations 1a, 2, 3). The fish, represented in the

canonical side view, is drawn with a sweeping and well controlled embracing line that ends in a tail, perpendicular to the body. The tractor consists of two large wheels, a shaft, exhaust pipe, seat, and steering wheel. The wheels are represented by overlapping circles which suggest the volumetric property of tires (Illus. 6, 7). These drawings, made at the age of 2.2, already consider the shape of the object and its relationship to the vertical and horizontal axes of the paper. They are drawn perpendicular to the line of sight of the observer, that is, in orthographic projection.

Almost immediately following the first drawings in our collection, the figures and objects become further differentiated, and we can see (a) how effectively Eytan uses this orthographic projection system, and also (b) how quickly he goes beyond its simplest form by juxtaposing two sides or faces of the object along the horizontal or vertical axes (see Illus. 11-15). Note the wheels of the bicycle or tractor drawn at age 2.2; two orthographic views of the wheels, a side and a top view have been juxtaposed, which lend a degree of solidity to the wheels (Illus. 7).

In quick succession we see a variety of vehicles: tractors, helicopters, jeep, moving van, cement mixers, trucks, buses, boat, cows and insects (Illus. 9-17). These items show increasing graphic differentiation, with attention to detail and to the function of parts. The cement mixing trucks are of special interest because they demonstrate this child's early

effort to capture more than a single face of the object (Illus. 15). Indeed, the long side view of the truck is supplemented by a top view of the hood as well as a rudimentary frontal view of the grill and bumper. This juxtaposition or alignment of different faces of an object along the horizontal or vertical axis represents a more advanced projective system (juxtaposed orthographic or in Willats' terminology horizontal and vertical oblique projection).

The majority of the drawings between 2.1 and 2.5 employ an orthographic projection system. However, from 2.3 years on, when Eytan first transforms the simple orthographic view by adding sides or faces, he puts us on notice that he is determined to portray more than the canonical forms which dominate the usual childhood drawings. While he begins with an orthographic projection system, he very quickly expands it by juxtaposing additional "faces" of the object, either vertically or horizontally (Illust. 17). Between 2.5 and 2.8 we see an increase in juxtaposed orthographic projection, which becomes the dominant system between 2.8 and 2.11.

By age three, we see more complex forms of juxtapositions. Eytan adds top and side faces to the frontal aspects of his vehicles. We notice a shift to a more complex form of juxtaposed orthographic projection, and the simultaneous appearance of divergent as well as isometric projections (Illus. 19-33). For several months Eytan experiments with these three systems, during which at first divergent perspective becomes the preferred mode

of representation (3.7 - 3.9), which somewhat later shifts to isometric projection (3.9 - 3.11). (See Illus. 32-35).

Thus, from three years on, Eytan abandons plain orthographic projections and the simple form of juxtaposition disappears at 3.6. He now engages in extensive experimentation with (a) an advanced form of juxtaposed orthographic projection, (b) divergent and isometric projections; at 3.8, in drawings of a skyscraper and of the hood of a car, we see the first converging lines. Altogether, Eytan employs various combinations of projection systems to suit his purposes, which is to show as many sides of the object as he can convincingly include in his portrayal of vehicles. He has moved from attaching sides, either vertically or horizontally to the frontal aspect, to a pragmatic experimentation with oblique lines that approximate in an intuitive, though imprecise manner various projection systems.

Eytan draws an astonishing array of vehicles: sports cars, convertibles, jeeps, trucks, buses, vans, campers, ambulances, trailers, tractors, bulldozers, airplanes, helicopters, an airballoon, and trains. His detailed representations reveal how carefully he observes these powerful and fascinating machines. His interest in their make-up extends beyond what is easily visible. He exposes views from underneath the hood of the car, depicts an inside view of a compressor with its belts and rotating parts, and offers views into the cockpit of the pilot (Illus. 21, 23, 25, 40).

Eytan freely varies the orientation of his vehicles, which

can face to the right or to the left of the page. An amazing drawing of a moving van made at 3.7 depicts the object in three quarter view. The vehicle is drawn in predominantly isometric projection, with several changes in the angle of the parallel lines (Illus. 31). Another drawing, from the same month depicts two people riding a motorcycle. It presents an effort to foreshorten the objects, and evokes a dynamic sense of movement (Illus. 36).

At age four, isometric projection has become Eytan's preferred strategy, and his vehicles are now embedded in more complex thematic compositions. Other themes also demonstrate his greater mastery in the control of line and the grouping of items. A drawing of Jerusalem and of a cement mixer in three quarter view demonstrate how beautifully he constructs his compositions. Using the isometric drawing system now in a consistent fashion, he creates powerful images of vehicles and machinery. In place of the earlier and intuitive exploration, one gets the impression of a deliberate selection of the isometric system that gives him a masterly control over his chosen subject matter (Illus. 38-45).

Let me sum up what Eytan's development so clearly has taught us:

1. This gifted child does not "skip:" stages as he teaches himself how to represent the objects that fascinate him until he can represent them as fully and as clearly as he desires. For Eytan, to draw is to know and to understand. It is quite breathtaking to see how Eytan transforms the simple drawing

systems, until they suit his purposes. We see how they come about and note the orderly fashion in which these drawing systems evolve. Their adoption follows in broad outlines the developmental progression delineated by Rudolf Arnheim, and provide empirical support for his theoretical analysis.

2. Eytan's extensive employment of divergent perspective does not support Margaret Hagen's thesis that drawing styles are derived from natural perspective. Divergent perspective is not a commonly occurring perceptual experience. Thus, the role divergent perspective plays in Eytan's graphic explorations challenges her proposition that there is no true development in drawing, that drawing styles are cultural options that are unrelated to the development of graphic conceptions as forms of visual thinking.

3. The record of Eytan's work, of his invention of drawing systems and their gradual transformation with practice, is congruent with the notion of an intrinsic logic that guides this development. It does not support Brent and Marjory Wilson's notion that drawings employ an arbitrary system of convention-based graphic symbols.

4. This body of work, which so clearly indicates that even a precociously gifted child artist does not really "skip" stages or phases in his graphic development, also provides an interesting perspective on Nadia's drawings. If we had not seen Eytan's earliest drawings at age two, and first viewed his vehicles drawn at age 3.6, we might have concluded, erroneously,

that he skipped stages, and arrived at his quite mature projective drawings out-of-phase. Extraordinary talent, intensive dedication and practice can, as demonstrated by Nadia and Eytan, lead to extraordinary achievements. This does not imply pathology in the case of Eytan, and neither is it likely that Nadia's drawing talent is a mark of pathology.

5. The question about "endpoints" in graphic development can now be answered in terms of Eytan's developmental course. Early on he set himself the task to render his favorite objects with as much fidelity to their looks and complex function as he could master. By virtue of his tenacity, talent, and commitment to his goals, he found solutions that satisfied him. In his case we can say that he acquired complex projective drawing systems on his own, without recourse to copying or instruction. But Eytan was also a very visual child, interested more in the pictures of his books than in the verbally told story, and he extracted much information form his pictorial environment. It is important to note that not every gifted child pursues the same goals, and thus perspective drawings need not be a "natural endpoint" in the development of gifted youngsters.

6. Regarding the special attributes of the drawings of gifted children, this collection bears the mark of an originality and an expressive power that go far beyond the notion of precocity, of a development that is merely compressed in time. Surely, gifted children bring their unique vision to their art-form.

Although my presentation has highlighted the cognitive aspects of Eytan's use of projective drawing systems, his work captures our attention because of the vitality of his lines and shapes, his use of graphic metaphors for movement, the dynamic quality of his vehicles, the manner in which he creates a unified and dynamically balanced composition.

7. Finally, the remarkable graphic achievement of three and four year old Eytan ought to make us wary of facile generalizations across different intellectual domains. Eytan, a thoughtful and intelligent child, was in most respects a typical preschooler and not a concrete operational child approaching the stage of formal operations.

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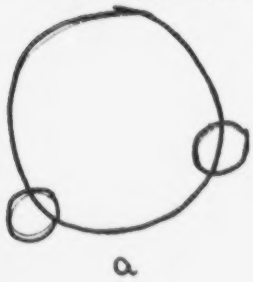
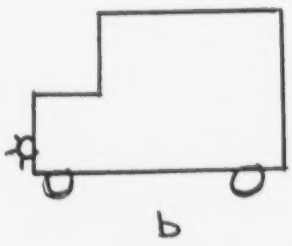
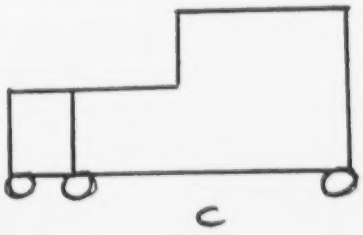
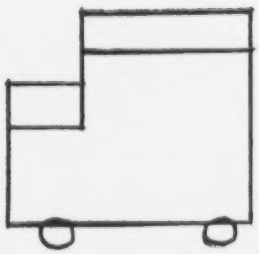
Schematic Drawings of a Car that represent Diverse Drawing Systems[1]

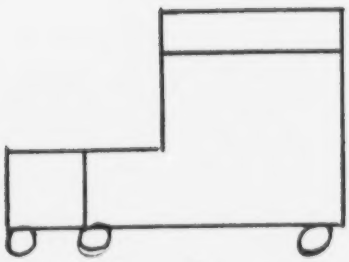
(a) topological representation; (b)simple orthographic projection;
(c) horizontal juxtaposed orthographic projection (horizontal oblique);
(d) vertical juxtaposed orthographic projection (vertical oblique);
(e) horizontal and vertical juxtaposed orthographic projection;
(f) early form of divergent projection;(g) divergent perspective;
(1) perspective.

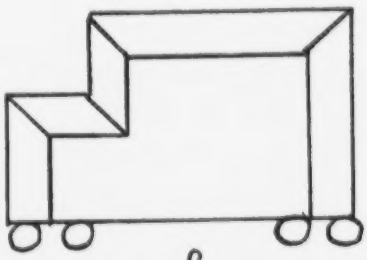












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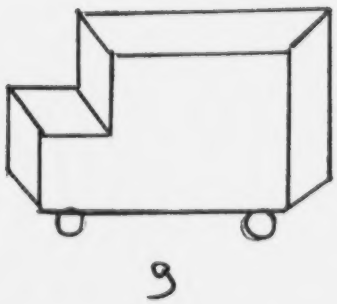

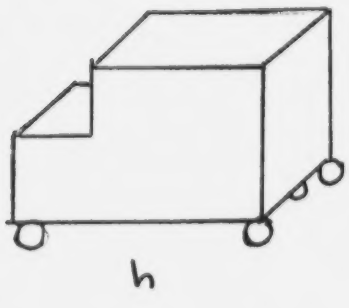

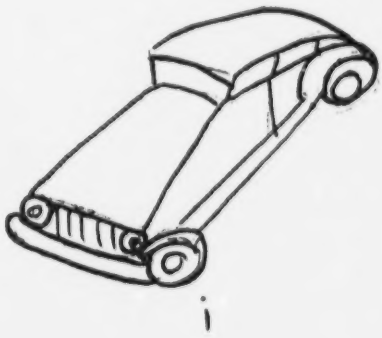

Note 1: Schematic drawings after Dinah Blake.

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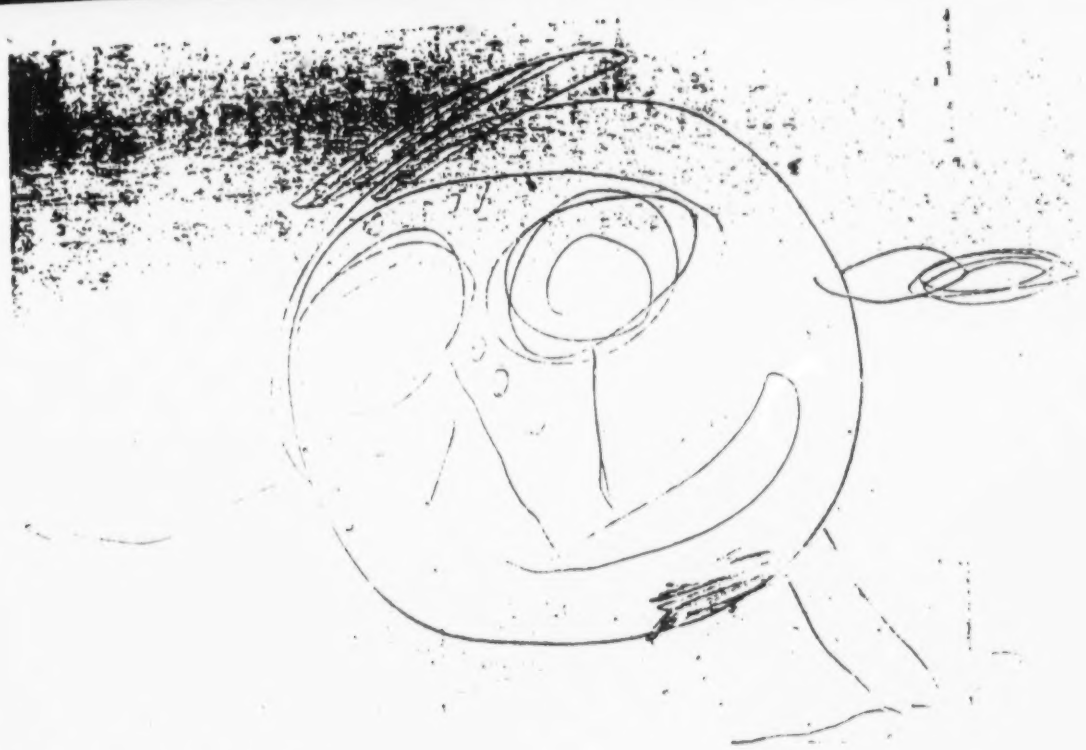

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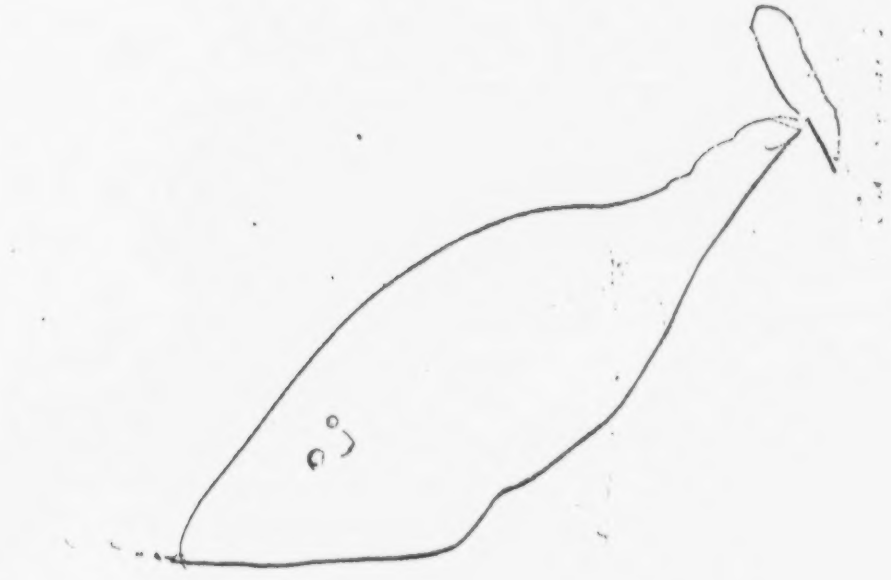

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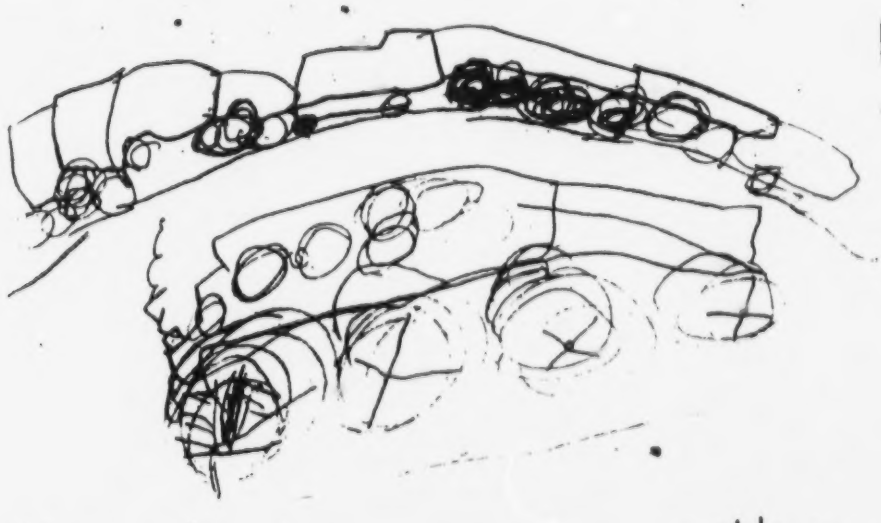

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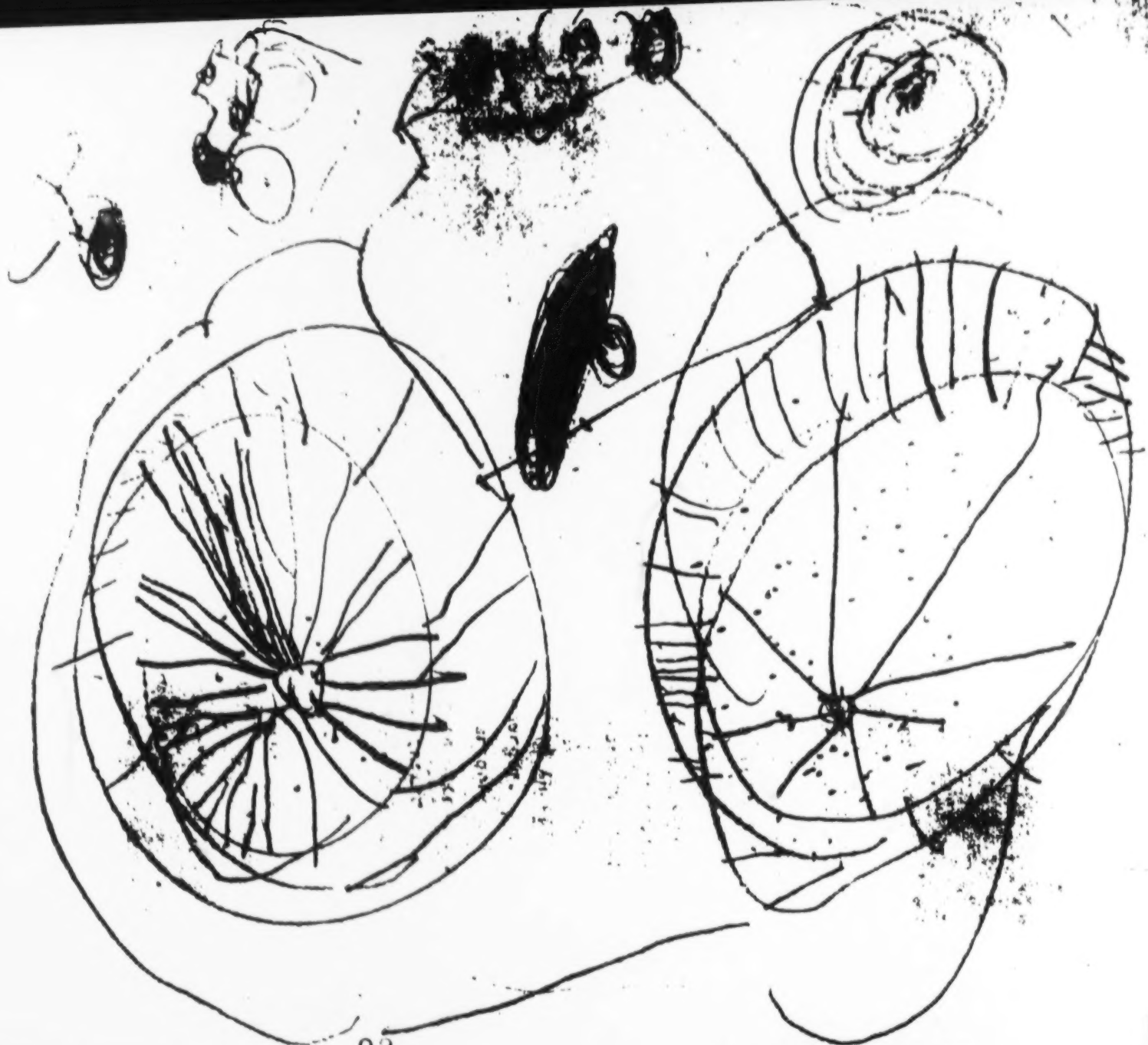

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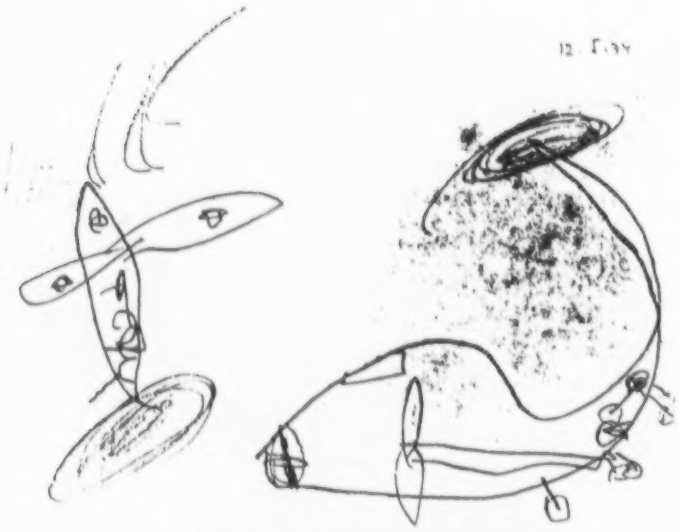

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Helicopter & airplane 27-5-94

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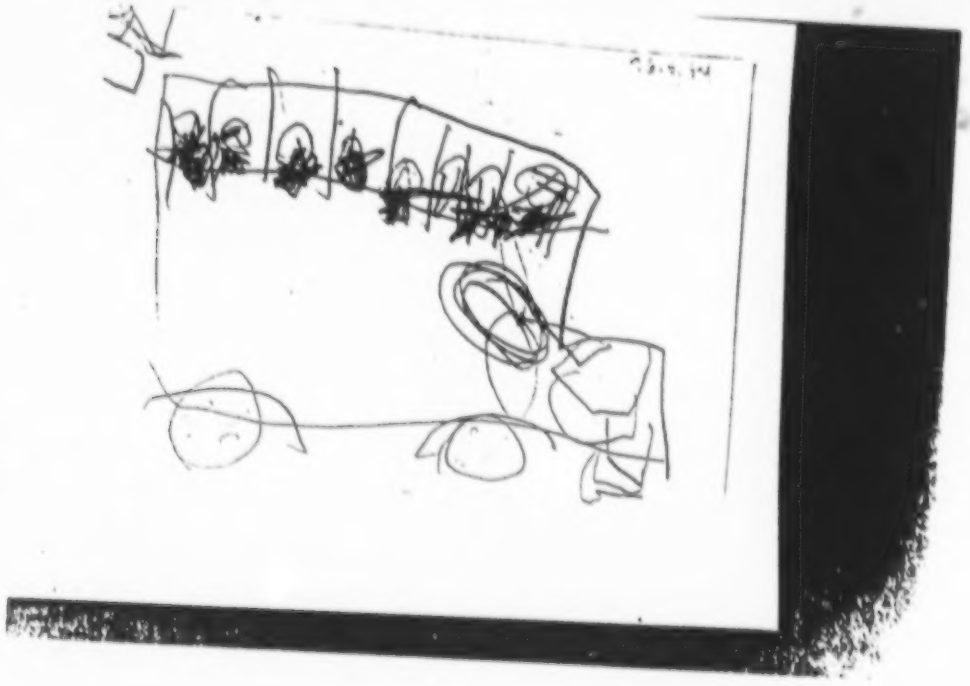

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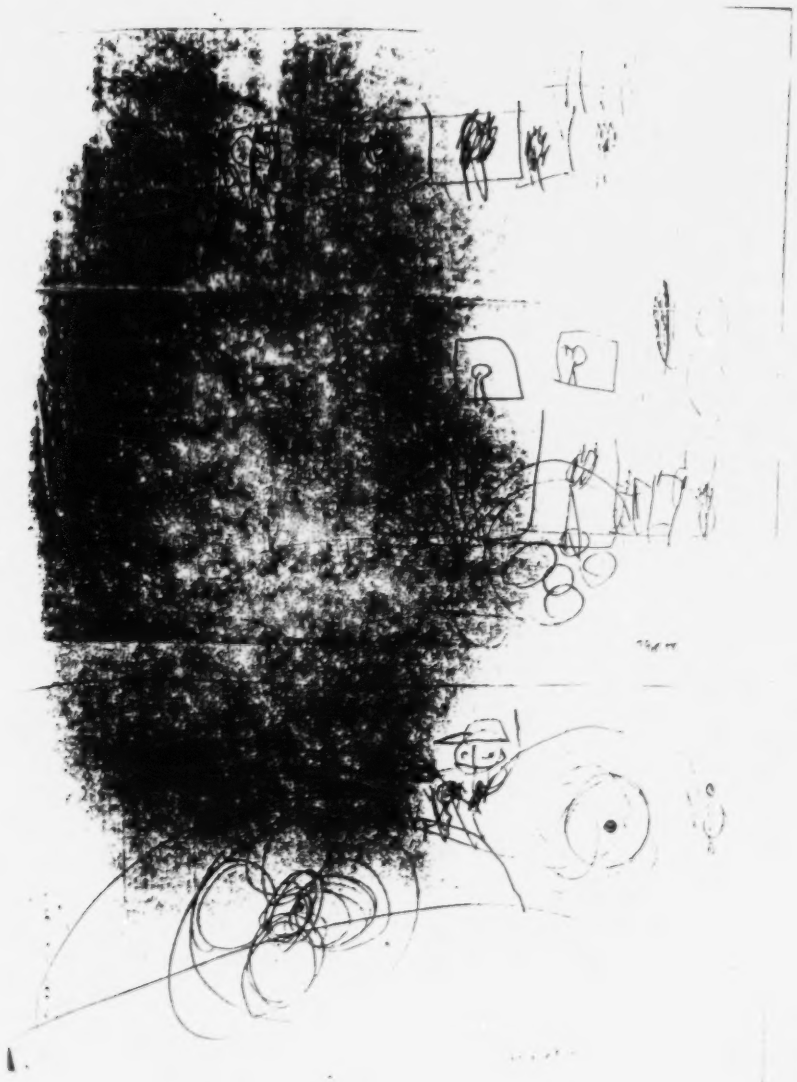

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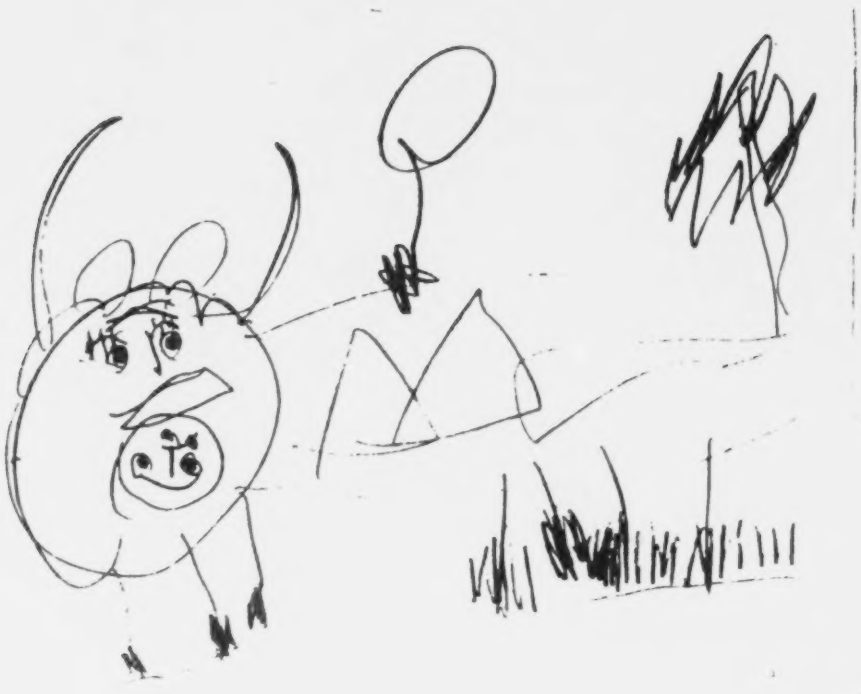

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16.

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14 Cuc Cla Tend
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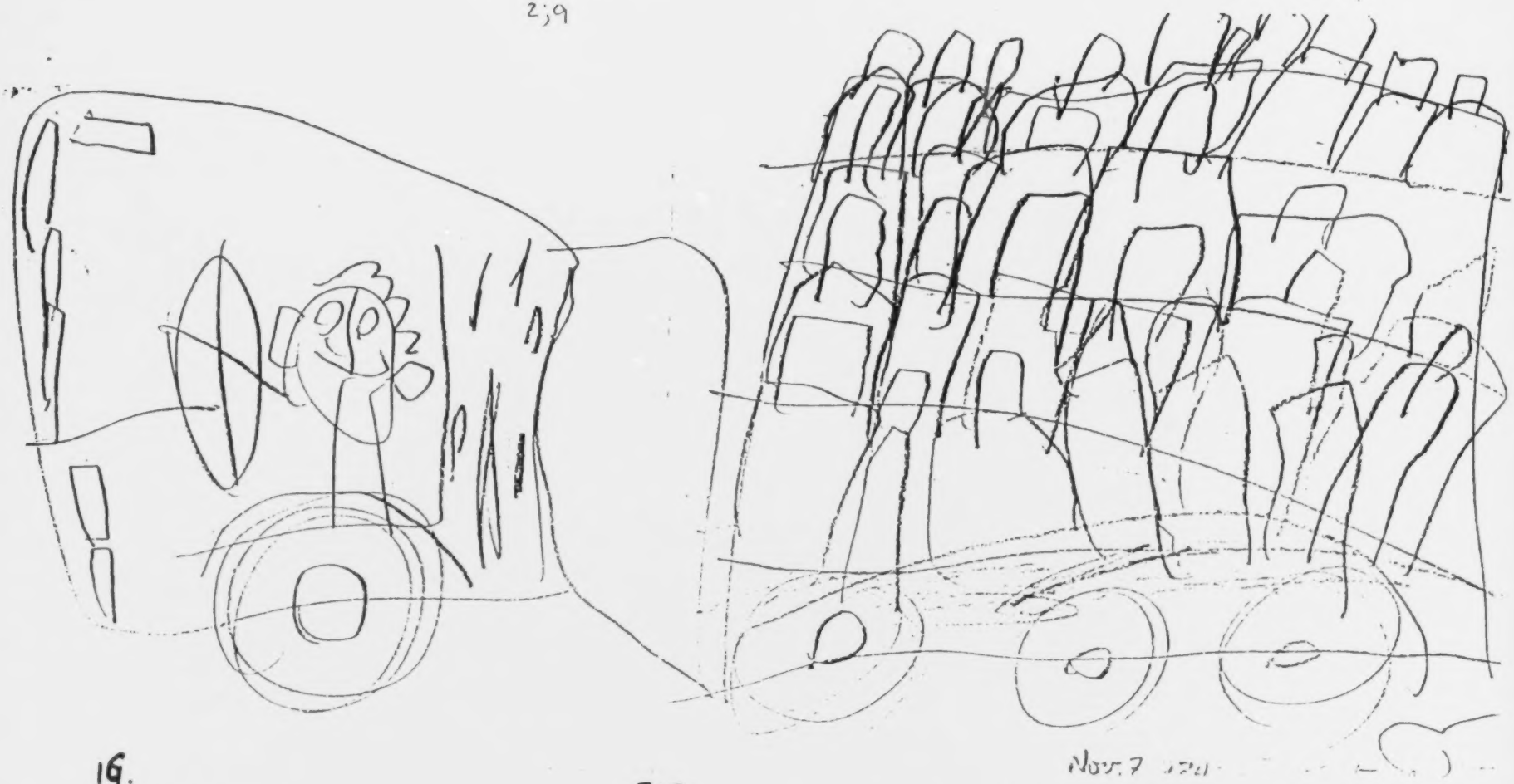

16.

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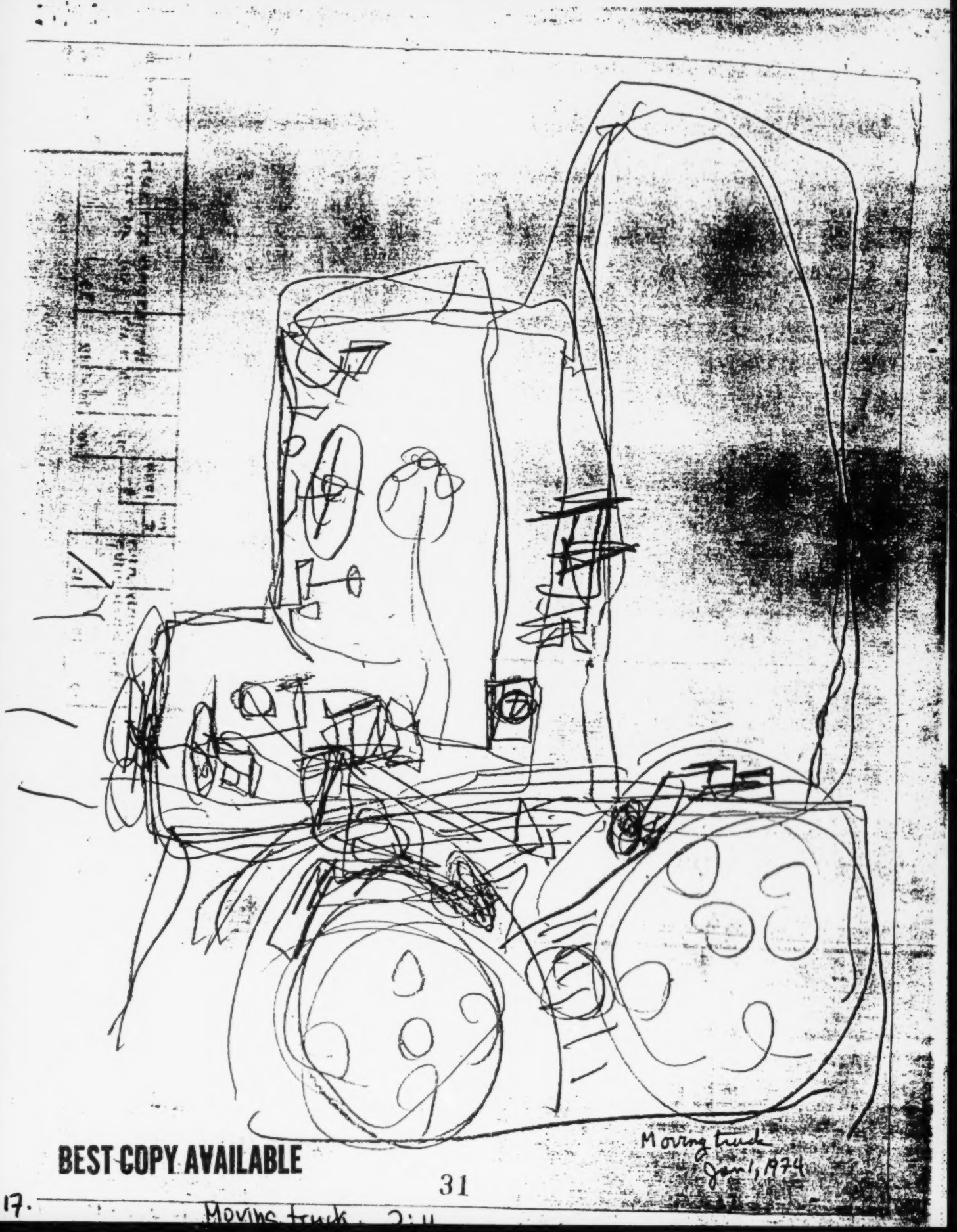

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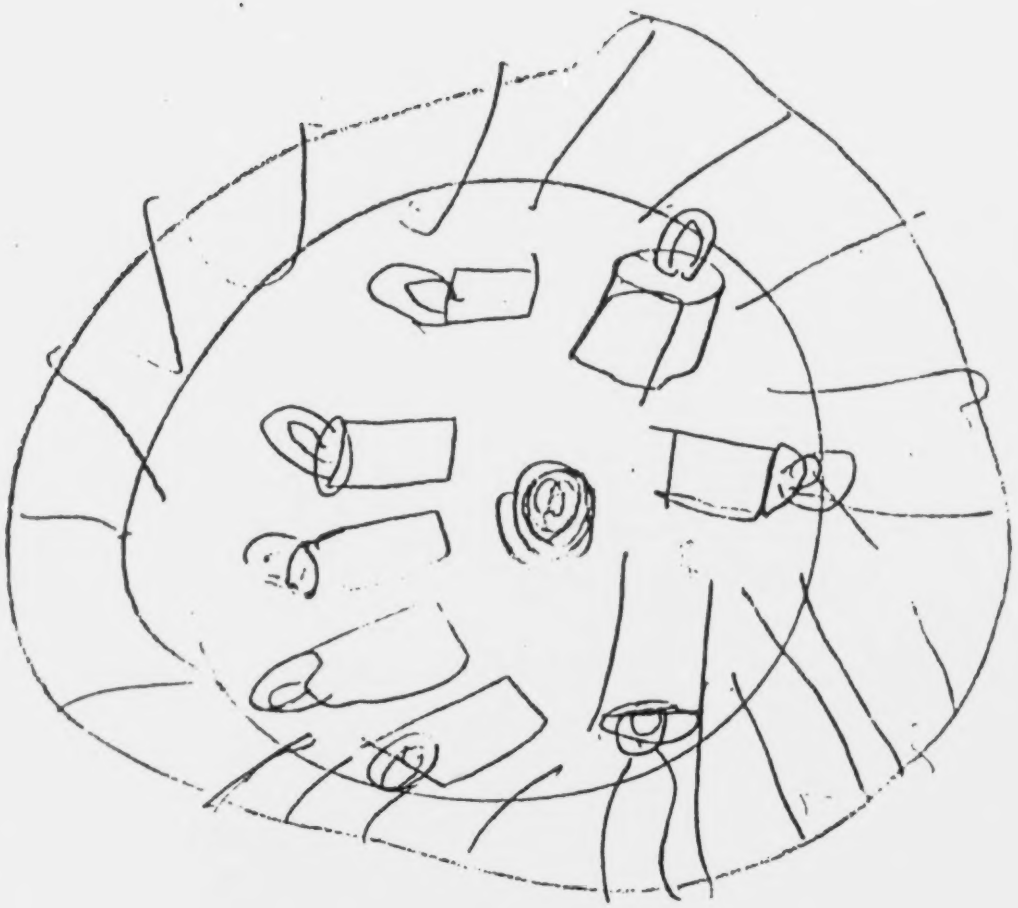
17. Moving truck. 2:11



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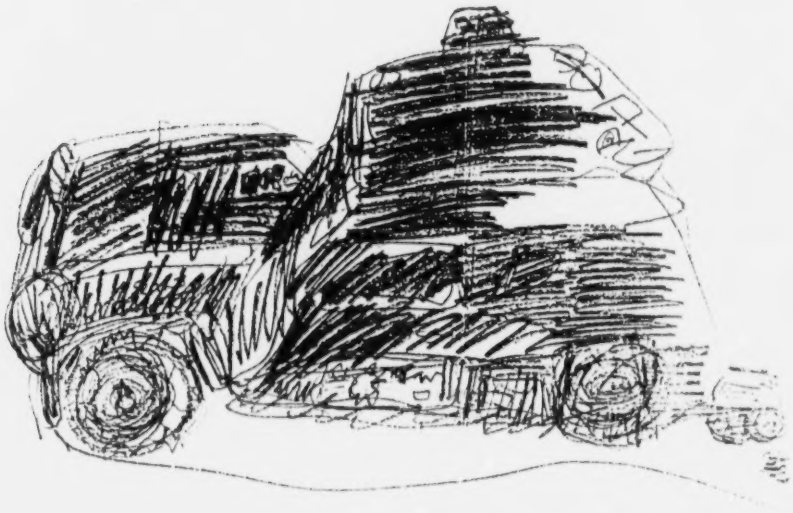
18 BIRTHDAY CAKE 20.1.25 3,0



19. three cars, 3,2

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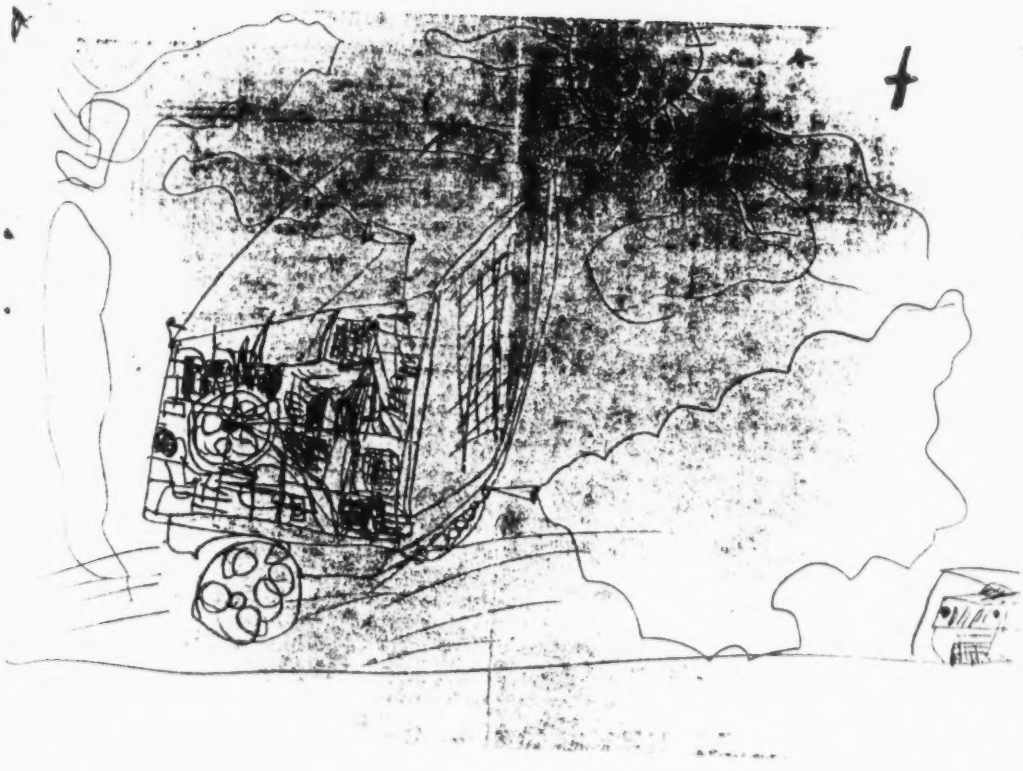
20. bulldozer, 3,1



23.

Compressor, 3;2

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24.

3:6

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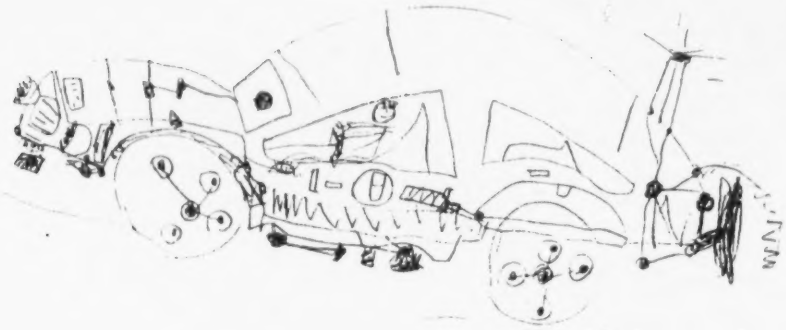

25.

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26.

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27.

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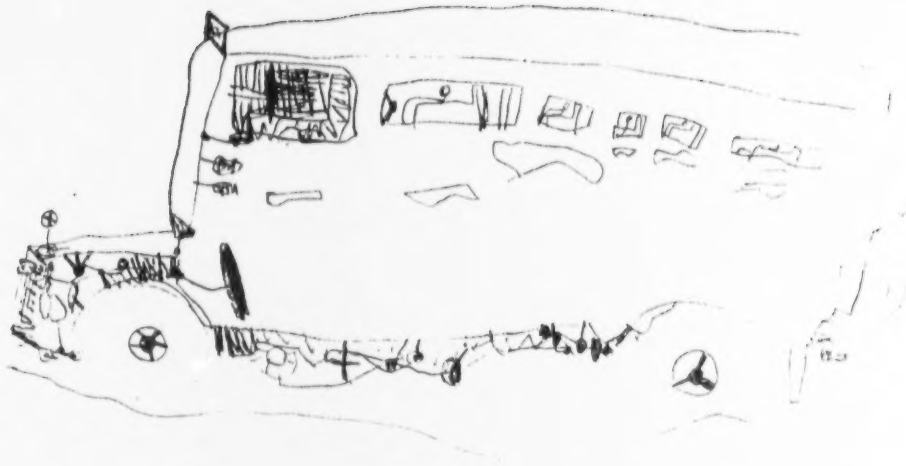

28.

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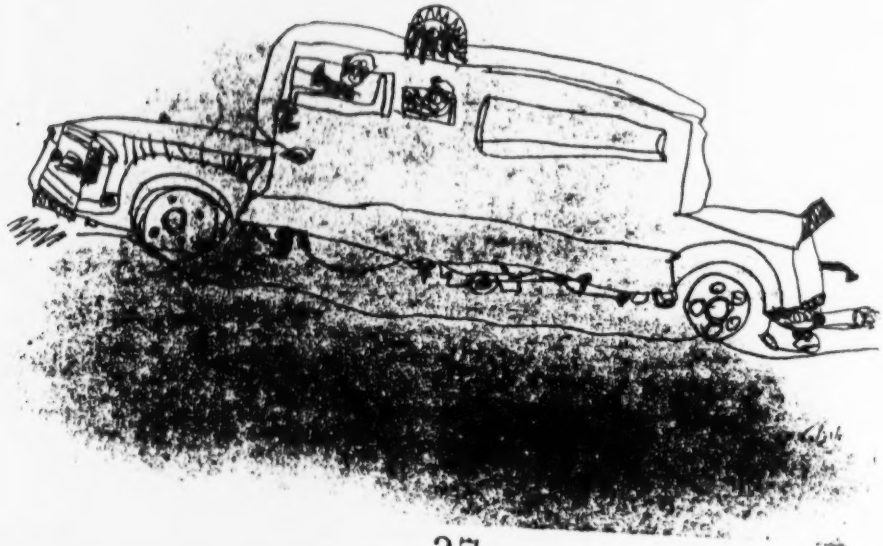

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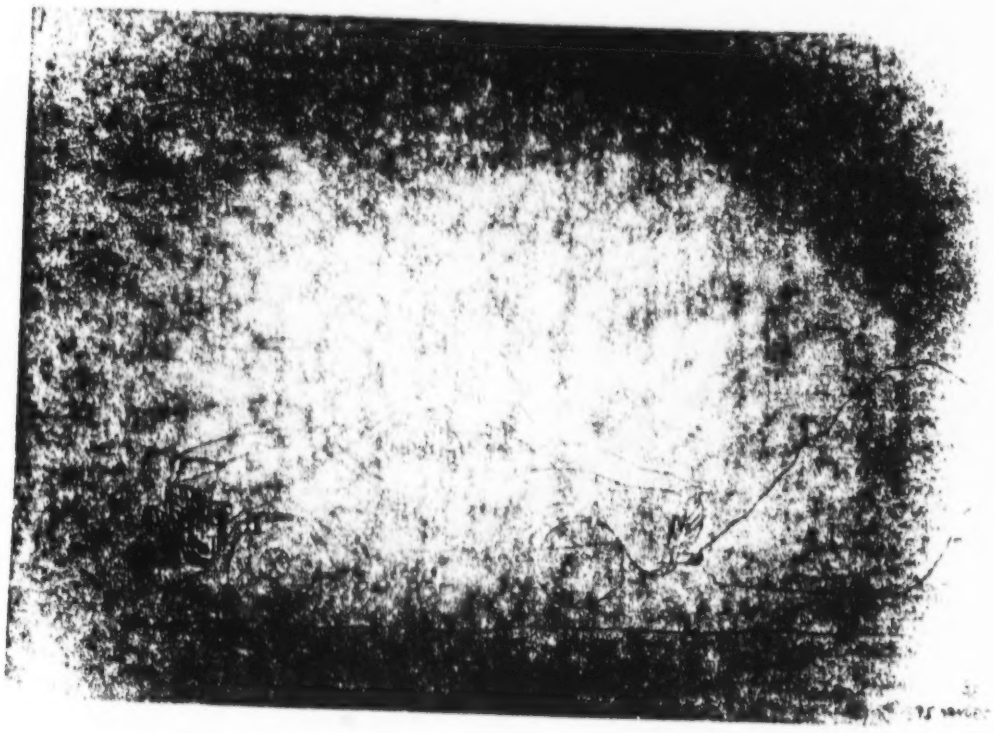

30.

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34.

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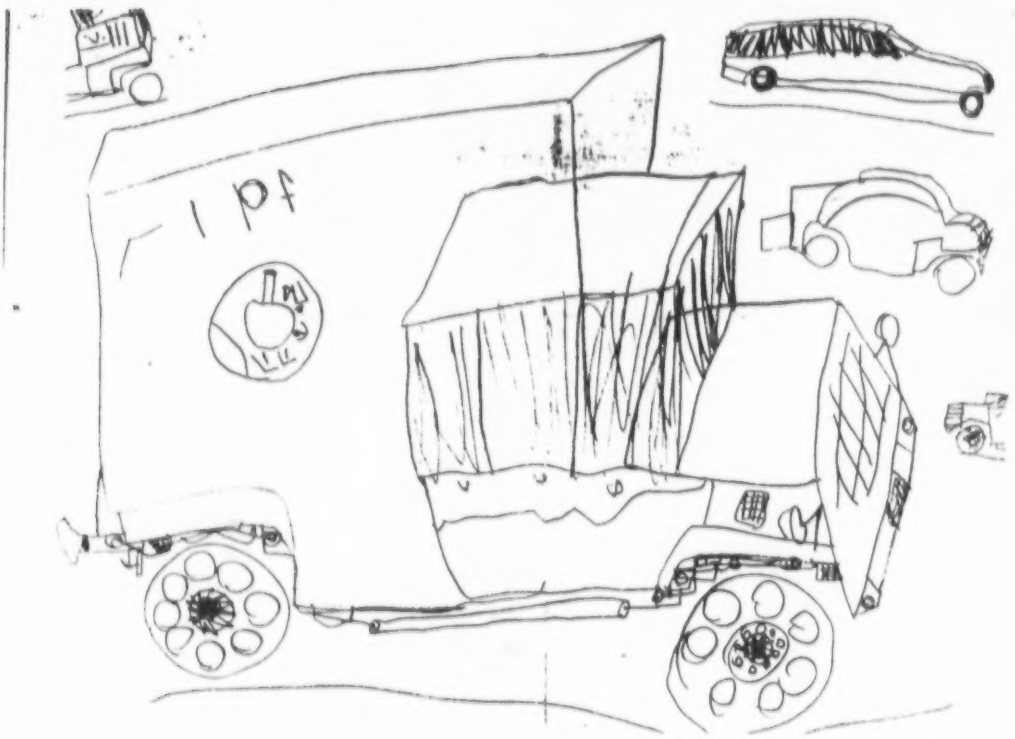

32.

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33.

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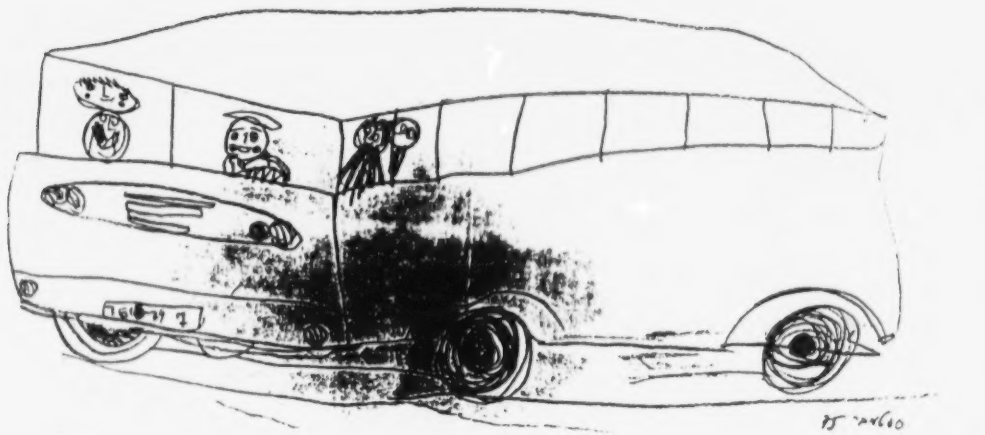

34.

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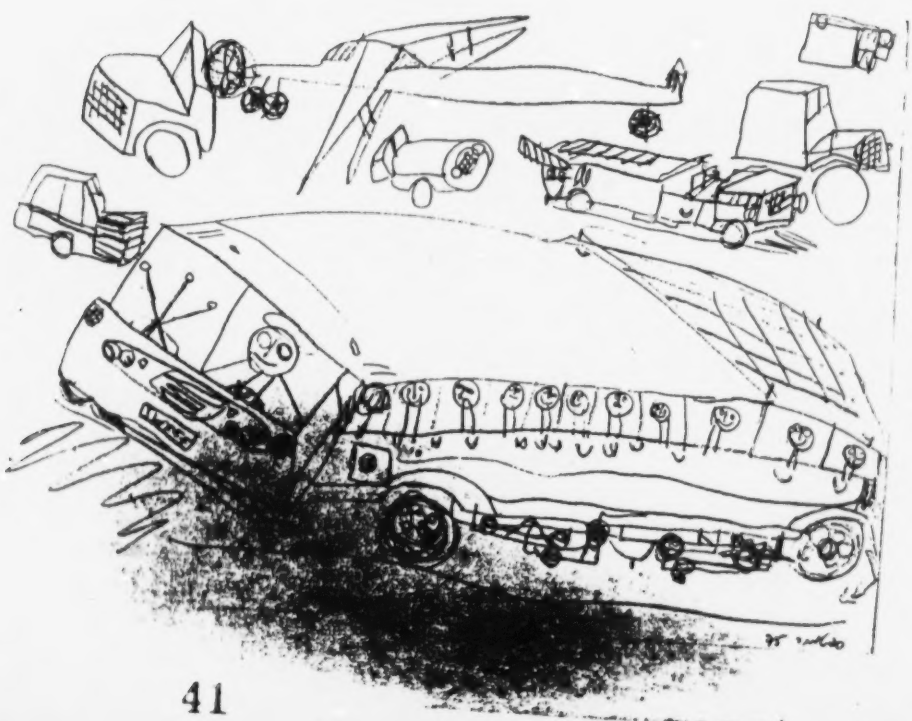

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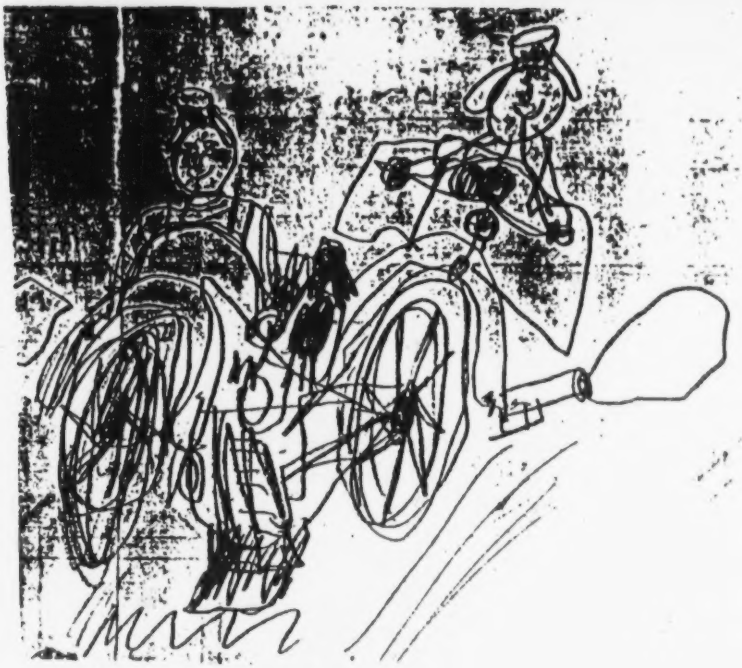

36.

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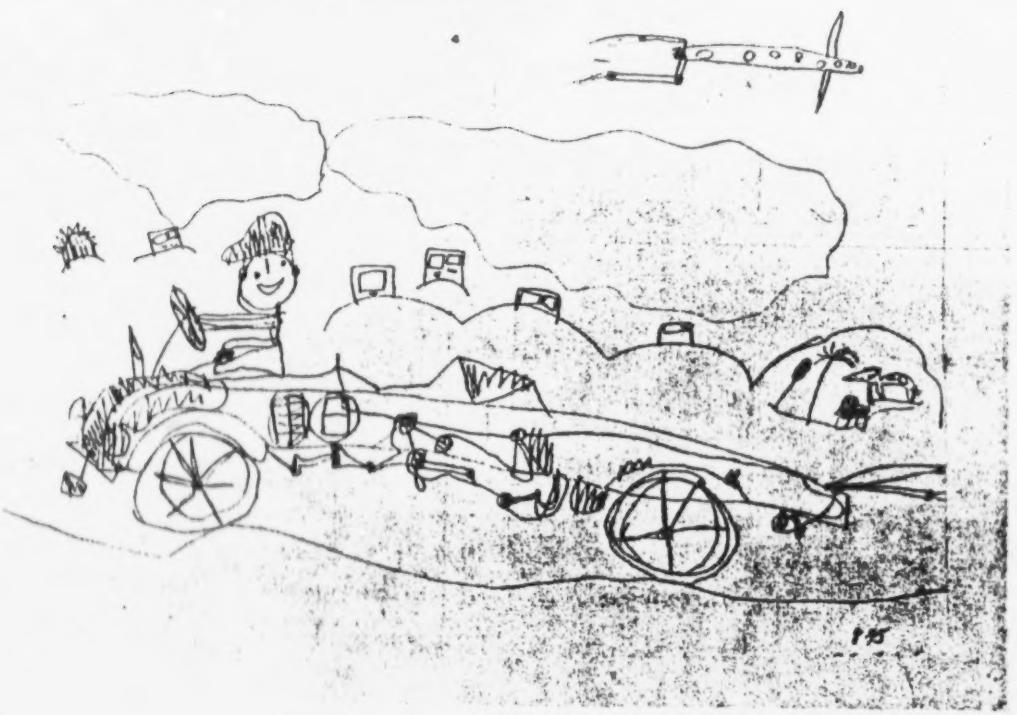

37.

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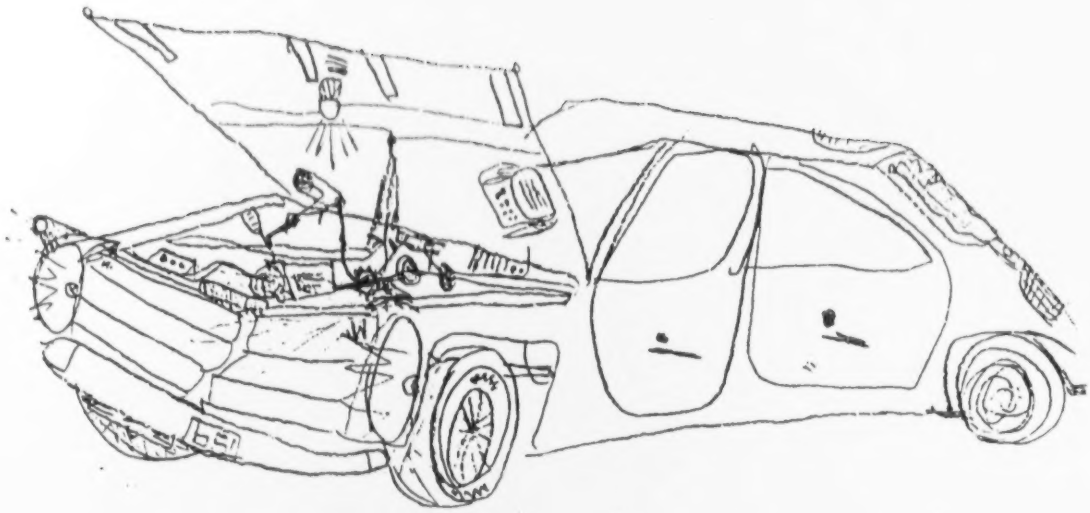
38.



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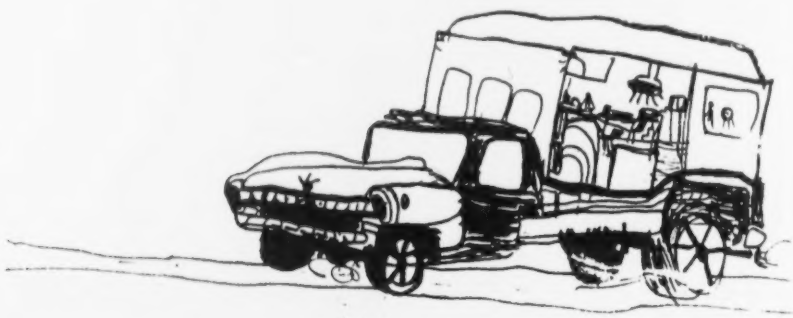

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41.

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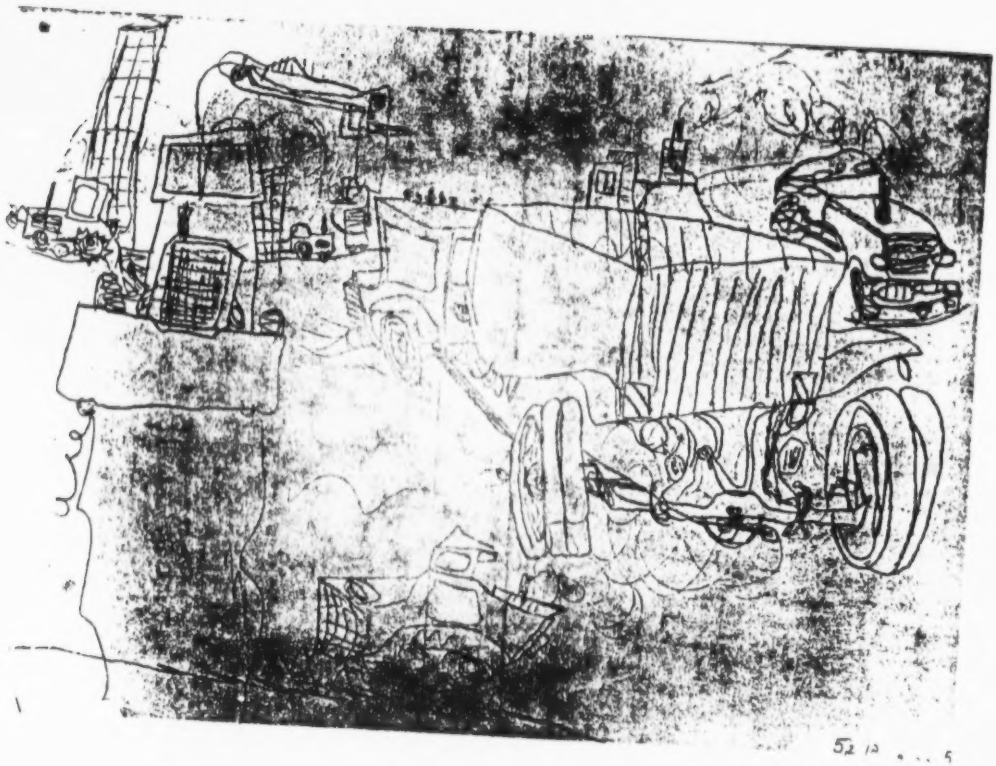

42.

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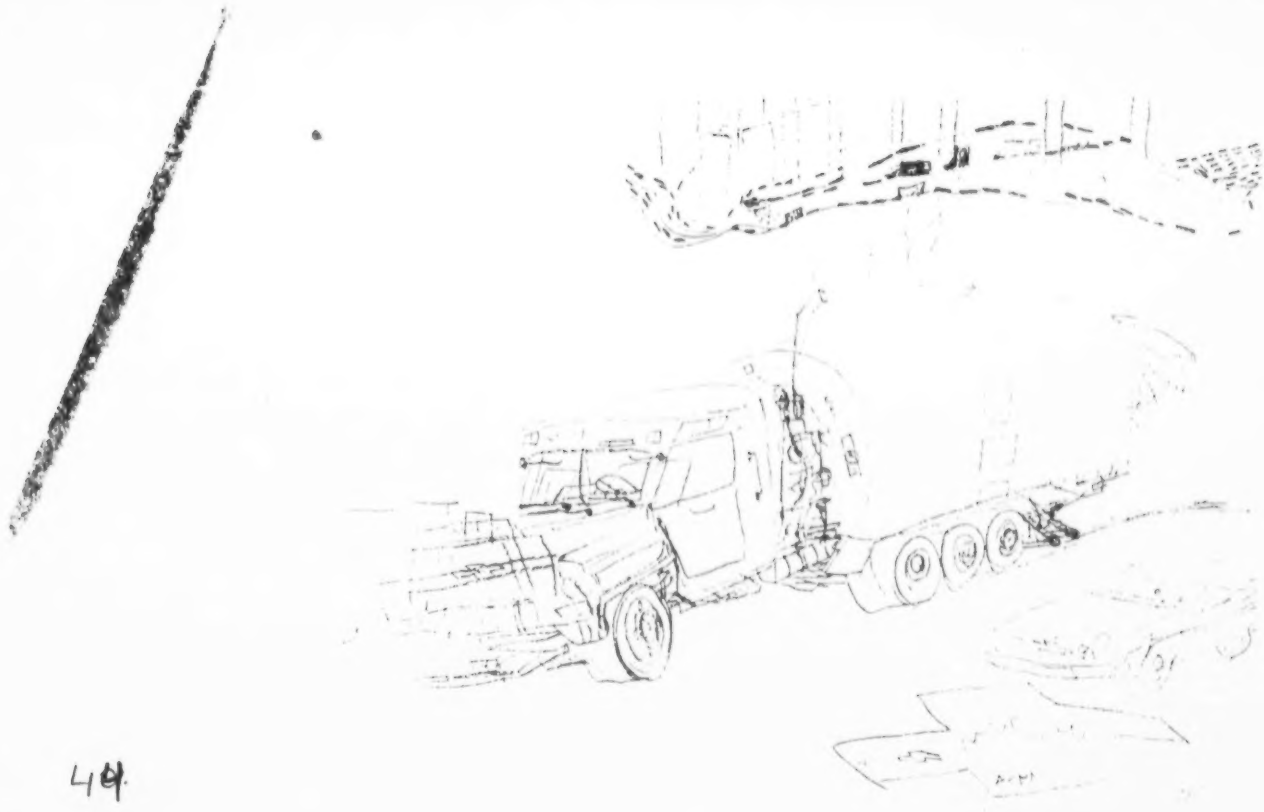
43.



44

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45.

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tornado

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